Clark County, Washington

National Pollutant Discharge Elimination System (NPDES) Annual Report for 2005

Submitted in compliance with National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge Permit No. WA-004211-1

June 30, 2006

Clark County Public Works Department
Vancouver, Washington

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STATEMENT OF CERTIFICATION

"I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature:_____

County Administrator

INTRODUCTION

Clark County's National Pollutant Discharge Elimination System (NPDES) municipal stormwater permit includes a requirement for an annual report to verify compliance with the permit requirements to perform the tasks of the stormwater management program (SWMP) and specific permit requirements.

This document is the annual report for the reporting period of January 1, 2005 to December 31, 2005. It is the seventh annual report under Clark County's permit. The Washington Department of Ecology (Ecology) extended Clark County's permit coverage from its expiration date of December 31, 2000 to issuance of the next permit. The county filed a notice of intent to receive permit coverage as a part of the June 2000 annual report.

ANNUAL REPORT REQUIREMENTS

The following section lists the permit requirements for the annual report (Special Condition S.8.) and subsequent sections describe how the county meets the annual report requirements. Permit compliance reporting is made complex by overlapping permit requirements, multiple departments performing different parts of permit components, and the reality that specific permit components are parts of broader county work programs.

S8. Stormwater Management Program Annual Report Requirements

A. The permittee shall submit an annual report by July 1, 2000 and annually thereafter. Any information in the report readily distinguished by water quality management areas should be presented as such.

B. The report shall include the following sections:

1. *Status of implementing the components of the approved Stormwater Management Program (SWMP), including the status of compliance with the approved implementation schedule described in Special Condition S9, and a description and rationale of any program modifications made, other than those submitted for approval under Special Condition S5.A;*

2. *Notification of any recent or proposed annexations or incorporations resulting in an increase or decrease in permit coverage area, and implications for the SWMP;*

3. *Differences between planned and actual expenditures with a breakdown for the components of the SWMP and the budget since permit issuance. The report shall reflect numeric expenditures for the components of the SWMP;*

4. *Revisions, if necessary, to the fiscal analysis reported in the SWMP;*

5. *A summary and analysis of the cumulative monitoring data collected throughout the term of the permit;*

a. *If the permittee monitors any pollutant more frequently than required by the SWMP, then the results of this monitoring shall be included in the report.*

b. *If the permittee conducts any other stormwater monitoring in addition to that required in the SWMP, then it shall provide a description of the additional monitoring in the report.*

6. *A summary describing compliance activities, including the nature and number of official enforcement actions, inspections, and types of public education activities;*

7. *Identification of known water quality improvements or degradation; and*

8. *The status of watershed-wide coordination and activities which the permittee has undertaken individually or jointly. The report shall include proposed management measures to enhance regional coordination and/or address regional stormwater problems that will be implemented during the term of the next permit.*

The numbered sections of this report correspond with the numbered annual report requirements described in the National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge Permit No. WA-004211-1, with the exception that annual report content requirements S8.B.1. (status of permit components), S8.B.5. (summary of monitoring results), and S8.B.6. (summary of compliance measures) are combined to simplify presentation.

1. STATUS OF PERMIT COMPONENTS

The permit-defined stormwater management program components (Special Conditions S5.B.1. – S5.B.8, and S9) are listed, followed by a description of the status of compliance, including a section for activities scheduled under Condition S9.

The stormwater management program, submitted to Ecology in 1998 as the permit application, included permit-mandated activities and several water resource and habitat protection and enhancement activities not required by the permit. This report focuses on stormwater management program activities that meet NPDES permit requirements, excluding activities in the Part 2 application that are not permit requirements.

S5.B.1. Comprehensive Planning Process

Permit Requirement

A description of a comprehensive planning process used to develop the stormwater management program including public participation, intergovernmental coordination, and the relationship to other planning processes.

Summary of Compliance Activities

The requirement for a comprehensive planning process to develop the stormwater management program was met by developing the 1999 NPDES stormwater management program submitted as the Part 2 application. When Ecology issues a new permit, the county will be required to revise its stormwater management program.

This component also includes the ongoing activities of the Clark County Clean Water Commission, created by the Clark County Board of County Commissioners to advise them on issues related to stormwater fee expenditures.

S5.B.2. Management Needs and Priorities

Permit Requirement

An analysis of stormwater management needs, a system for prioritizing needs, a description of the basis for the priority system, and an implementation plan and schedule for the term of the permit that reflect the priority needs. The stormwater management program must have an appropriate balance between prevention and correction based upon available information about sources of pollution and discharges from municipal separate storm sewers owned or operated by the permittee.

Summary of Compliance Activities

This requirement was performed for the 1999 NPDES stormwater management program submitted for the Part 2 application. The stormwater management program implements the highest priority activities.

S5.B.3. Legal Authority

Permit Requirement

Adequate legal authority to control discharges to and from municipal separate storm sewers owned or operated by the permittee. This legal authority, which may be a combination of statute, ordinance, permit, contract, order, or inter-jurisdictional agreements with other permittees which have existing legal authority, shall include the ability to:

1. *Control the contribution of pollutants to municipal separate storm sewers owned and operated by the permittee from stormwater discharges associated with industrial activity, and control the quality of stormwater discharged from sites of industrial activity;*
2. *Prohibit illicit discharges to the municipal separate storm sewer owned or operated by the permittee;*
3. *Control the discharge of spills and the dumping or disposal of materials other than stormwater into the municipal separate storm sewers owned or operated by the permittee;*
4. *Control through interagency agreements or inter-jurisdictional agreements among permittees, the contribution of pollutants from one municipal separate storm sewer to another;*

5. *Require compliance with the conditions in ordinances, permits contracts, or orders; and*
6. *Within the limitations of state law, carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance with local ordinances.*

Summary of Compliance Activities

In 1998, Clark County adopted an ordinance prohibiting illicit discharges into its storm sewer system. This ordinance has been kept in effect and enforced since 1998.

S5.B.4. Monitoring Program

Permit Requirement

A program to monitor the effectiveness of the stormwater management program in reducing pollutants discharged and reducing impacts to surface waters, ground waters, and sediments. The monitoring program, based upon the priorities identified in Special Condition S5.B.2. and specific actions required in Special Condition S9.C., shall address field evaluation, sampling, and analysis to:

1. *Estimate concentrations and loads from representative areas or basins to be used in evaluating overall program effectiveness;*
2. *Evaluate the effectiveness of selected Best Management Practices (BMPs);*
3. *Identify specific sources of pollution; and*
4. *Identify the degree to which stormwater discharges are impacting selected receiving waters and sediments.*

The monitoring program shall include a quality assurance/quality control plan.

Summary of Compliance Activities and Summary Cumulative Data

The Water Resources Program of the Clark County Public Works Department performs the monitoring program. During 2005, the monitoring program continued current monitoring activities, completed a stream reach characterization project under a grant from the Department of Ecology, and conducted several new projects and activities including the Whipple Creek Stream Assessment project. Each project or activity follows a quality assurance/quality control plan and most follow a Quality Assurance Project Plan based on the Washington Department of Ecology guidance manual. Many of the QAPPs and reports from projects are on the Monitoring Reports and Publications Web page: http://www.co.clark.wa.us/water-resources/monitoring/reportspublic.html

Measured parameters, indicators, and procedures

The stormwater management program has a standardized set of biological, water quality, and physical habitat parameters and indicator metrics. Standard procedures were developed and are followed to collect environmental data. The parameters form the basic environmental measurement tools for the stormwater program.

Continuous Stream Flow Gauges

Stream flow gauges provide a means to continuously measure stream stage and flow. This information is used to describe drainage basin hydrology for various purposes and to calibrate computerized hydrology models needed to design new stormwater facilities and predict stream flow for proposed development conditions. Flow data for water quality monitoring sites can also be used to estimate instantaneous pollutant loads and approximate pollutant loads for longer periods of time. Gauges are placed in basins of interest for stormwater management and at locations monitored as Long-Term Index Sites.

Final stream flow gauge data is posted on the Monitoring Section Web page:
http://www.clark.wa.gov/water-resources/monitoring/flow.html

Clark County Stream Gauge Location	Site Name	Watershed
Lacamas Creek at NE 217th Avenue	LAC080	Lacamas Creek
Lacamas Creek Goodwin Road	LAC050	Lacamas Creek
Matney Creek at NE 68th Street *	MAT008	Lacamas Creek
China Ditch upstream of NE Ward Road	CHD012	Lacamas Creek
Breeze Creek. below 4th Street *	BRZ008	East Fork Lewis River
Gee Creek at Abrams Park	GEE028	Gee Creek
Whipple Creek at NW 179th Street *	WPL048	Whipple Creek
Little Washougal at Blair Road	LWG013	Little Washougal River
Jones Creek Camas Property *	JNS058	Little Washougal River
Curtin Creek at NE 139th Street *	CUR022	Salmon Creek
Mill Creek at Salmon Creek Avenue *	MIL008	Salmon Creek
Cougar Creek at NW 119th Street *	CGR018	Salmon Creek
Salmon Creek at Klineline Foot Bridge	SMN020	Salmon Creek
Salmon Creek at NE 156th Street	SMN045	Salmon Creek

* indicates a Long Term Index Site

Continuous Rainfall Gauges

Continuous rainfall gauges provide an incremental record of rainfall with time. This information is used to analyze rainfall patterns and to develop computerized models needed for designing stormwater facilities and stormwater basin plans. Gauge sites are selected to provide good countywide rainfall information.

Final rainfall gauge data is posted on the Monitoring Section Web page:
http://www.clark.wa.gov/water-resources/monitoring/rainmonitor.html

Clark County Rain Gauge Site	Watershed
Goodwin Road	Lacamas Creek
Yacolt Town	East Fork Lewis River
Ridgefield Treatment Works	Gee Creek
Orchards at Whatley decant facility	Burnt Bridge Creek
Cape Horn School	Washougal River
Salmon Creek Treatment Works	Salmon Creek
Venersborg	Salmon Creek
Salmon Creek at 156th Street	Salmon Creek

Lacamas Lake Monitoring

Water Resources performs monthly monitoring during May through October in Lacamas Lake to track lake health over time. Vertical profiles collect dissolved oxygen, temperature, pH, conductivity, and turbidity at 1-meter intervals. Secchi-disk readings are also recorded and water samples collected from several depths for nutrient analyses. In 2003, phytoplankton and chlorophyll a were added to the sampling.

Lacamas Lake Monitoring Results: Results showed a significant decrease in total phosphorus between the 1984 baseline assessment and data collected beginning in 1992. Since 1992, no trend is apparent, but algal data suggest that there is possible increased eutrophication. Lacamas Lake continues to be classified as eutrophic.

Vancouver Lake Monitoring

Water Resources supports a volunteer monitoring project on Vancouver Lake that began in summer of 2004. Vancouver Lake is a two-mile wide, shallow lake on the Columbia River flood plain. It is tidally influenced and connected to Lake River, Burnt Bridge Creek and indirectly to Salmon Creek through Lake River. The lake is monitored twice monthly for standard parameters and algal communities to make an assessment of current lake conditions.

Vancouver Lake Monitoring Results: Vancouver Lake has an overall trophic state index of 74, which places it in the hyper-eutrophic category. The lake has very low transparency; Secchi measurements are about half a foot or less, and turbidity readings are over 100 during late summer. Blue green algae monitoring by the Health Department resulted in swimming beach closures for much of summer 2004 and 2005.

Illicit Discharge Detection (Screening)

During 2005, the program developed a plan to use a watershed-based approach, including a stream assessment to map and inventory outfalls and find non-stormwater discharges. The Whipple Creek Stream Assessment included an inventory of 96 outfalls in urban areas and much of the rural residential areas during February through April 2005. One outfall was found to have an obvious illicit discharged referred to education and enforcement personnel.

Thomas Wetland Temperature Study

Thomas Wetland is a newly built project that combines a wetland mitigation and stormwater control retrofit for a developed urban area. The wetland includes several acres of year-round open water that raised concerns about temperature. Temperature monitoring was performed on the facility and downstream pipe system to determine if the new wetland pond contributed to temperature problems in Burnt Bridge Creek.

Thomas Wetland Temperature Study Results: A report was completed in 2005 describing the project's results. The open water at Thomas Wetland increased water temperatures over the preexisting ditch system. However, the water flowing out of Thomas wetland was cooled to subsurface soil temperatures (about 55 degrees Fahrenheit) during flow through more than a mile of piped storm sewer to the outfall into Burnt Bridge Creek. Another important finding was that the pond level dropped sufficiently to retain a significant amount of summer storm runoff.

Gabbert Stormwater Facility Design - Hydrology Monitoring

During 2005, rainfall, flow, and water temperature were continuously monitored at the site of a planned regional stormwater facility and wetland enhancement. The data will be used to simulate the hydrologic characteristics of the facility catchment to aid facility design.

Long-Term Index Sites Project (LISP)

Long-term Index Site Project monitoring began in August 2001 and the current water quality monitoring program in spring 2002. The LISP goal is to assess current conditions and trends in stream health at nine stormwater-influenced stream stations and a reference site. A suite of stream health characteristics are monitored at each site, including measures of physical habitat, biological condition, water quality, and hydrology. Characteristics and protocols are selected to produce data comparable to those collected by other agencies. Data are analyzed using standardized, regionally appropriate metrics to facilitate comparability.

LISP Summary: Longer periods of time, possibly five to ten years, may be required to discern trends. Generally, poor to very poor conditions are found in urban areas, poor to fair conditions in rural areas, and good to excellent conditions in more forested areas.

Site ID	Stream	Watershed	B-IBI Score Rating (2001-2005 Ave.)	Oregon DEQ Water Quality Index (2002-2005)
BRZ010	Brezee Creek	East Fork Lewis River	31 (Fair)	75 (Poor)
RCN050	Rock Creek North	East Fork Lewis River	35 (Fair)	79 (Poor)
CHL010	Chelatchie Creek	Cedar Creek	32 (Fair)	87 (Good)
GEE050	Gee Creek	Gee Creek	22 (Poor)	63 (Poor)
WPL050	Whipple Creek	Whipple Creek	24 (Poor)	60 (Poor)
CGR020	Cougar Creek	Salmon Creek	21 (Poor)	36 (Very Poor)
CUR020	Curtin Creek	Salmon Creek	22 (Poor)	31 (Very Poor)
MIL010	Mill Creek	Salmon Creek	28 (Fair)	75 (Poor)
MAT010	Matney Creek	Lacamas Creek	36 (Fair)	85 (Fair)
JNS060	Jones Creek	Little Washougal River	46 (Excellent)	95 (Excellent)

Salmon Creek Monitoring Project

The intent of the Salmon Creek Monitoring Project is to provide high-quality water quality information about Salmon Creek watershed status and trends to Clark Public Utilities and Clark County decision-makers. In 2002, Water Resources and Clark Public Utilities agreed to consolidate ambient monitoring in Salmon Creek, standardize monitoring methods, and eliminate overlapping activities. As a result, Water Resources assumed responsibility for collecting water quality data at eight sites.

Summary of Salmon Creek Site Results: The table below shows data collected for five Clark Public Utilities sites. The LISP summary includes three other Salmon Creek Watershed Sites.

Site	**Location Stream**	**Oregon DEQ Water Quality Index Rating (2002-2005)**
SMN010	Salmon Creek @ NW 36th Avenue	73 (Poor)
SMN030	Salmon Creek above Mill Creek	73 (Poor)
SMN050	Salmon Creek @ NE 122nd Avenue	86 (Good)
WDN010	Woodin Creek @ NE 122nd Avenue	77 (Poor)
SMN080	Salmon Creek @ NE 199th Street	92 (Excellent)

Volunteer Stream Monitoring Project

Volunteer-collected data from this project support the monitoring objectives of the Long-Term Index Site Project and the SWMP. Stream monitoring reaches are selected to provide data to the Water Resources' monitoring program and ease of access. Volunteers currently collect quarterly water quality and annual macroinvertebrate samples at Mill Creek and Brezee Creek as part of the LISP project. A site was added on Gibbons Creek in water year 2005 to complement the Gibbons Creek bacteria TMDL project. Water Resources publishes newsletters (on volunteer the Web page) to update the monitors on the results from their projects.

Summary of Volunteer Results.

Site	Stream	Watershed	B-IBI Score (Average)	Oregon DEQ Water Quality Index Rating
GEE030	Gee Creek	Gee Creek	25 (Poor)	70 (Poor)
GIB035	Gibbons Creek	Gibbons Creek	38 (Good)	89 (Good)
JEN010	Jenny Creek *	East Fork Lewis River	44 (Good)	86 (Good)
FPL050	Fifth Plain Creek *	Lacamas Creek	23 (Poor)	84 (Fair)
LWG015	Little Washougal River*	Little Washougal River	30 (Poor)	88 (Good)

* = discontinued site

Gibbons Creek TMDL Volunteer Monitoring Project

In April 2004, Clark County began a project to provide data describing bacteria, temperature, and turbidity for the Gibbons Creek bacteria TMDL program. The project was designed to target tributaries for further source identification projects and to provide a baseline for TMDL program effectiveness monitoring. Monitoring is conducted by county-trained volunteers and the lab analysis is provided by the City of Washougal sewer treatment works.

Summary of Gibbons Creek TMDL Volunteer Monitoring Project Results: A June 2005 summary report of one year of data found that volunteer monitoring, using the Washougal POTW lab for sample analysis has been generally successful. Preliminary results suggest that uppermost Gibbons Creek and one upper tributary meet water quality criteria for fecal coliform bacteria. Results also suggested bacteria sources were associated with both storm runoff and other ongoing sources.

Watershed Characterization Grant

During fall 2004, the Lower Columbia Fish Recovery Board and Clark Count Water Resources completed a watershed characterization project for Cedar Creek, the North Fork Lewis River below Lake Merwin and the East Fork Lewis River in WRIA 27; and Salmon Creek/Lake River and the Washougal River system in WRIA 28. Water Resources collected or coordinated 15 macroinvertebrate samples and 18 temperature data sites during the project.

Watershed Characterization Grant results: The project's temperature results are included with the 2004 temperature data. The table below summarizes the macroinvertebrate data and B-IBI scores. The results are in a report published in November 2005. The report also summarizes habitat conditions for sampled reaches and identifies potential restoration opportunities. http://www.clark.wa.gov/water-resources/documents/Monitoring/final%20LCFRB%20grant%20habitat%20and%20bug%20summary.pdf

Summary of Characterization Grant 2004 B-IBI Results:

Site	Stream	Watershed	B-IBI Score
LOC020	Lockwood Creek	East Fork Lewis River	24 (Poor)
MLN010	Mill Creek	East Fork Lewis River	28 (Fair)
RCN010	Rock Creek North	East Fork Lewis River	32 (Fair)
RCS050	Rock Creek South	East Fork Lewis River	42 (Good)
CED080	Cedar Creek	Cedar Creek	48 (Excellent)
JON010	John Creek	Cedar Creek	44 (Good)
CHL030	Chelatchie Creek	Cedar Creek	26 (Poor)
WDN030	Woodin Creek	Salmon Creek	22 (Poor)
ROC010	Rock Creek	Salmon Creek	26 (Poor)
SMN085	Salmon Creek	Salmon Creek	38 (Good)
BDR030	Boulder Creek	Little Washougal River	34 (Fair)
LWG050	Little Washougal River	Little Washougal River	42 (Good)

Stream Health Report

Water Resources published the Stream Health Report (June 2004), summarizing existing monthly water quality and annual macroinvertebrate data (through 2002) for Clark County streams. It provides observed stream health ratings where data exist or probable stream health ratings based on subwatershed land cover where water quality data are lacking. The report can be viewed at: http://www.clark.wa.gov/water-resources/stream.html, and a summary map was included in the 2003 annual report.

Stream Temperature Monitoring

For various projects, temperature loggers were placed at LISP and volunteer stream sites during 2005. Each year's temperature summary is provided as a separate table.

2002 LISP Site temperature data logger results as number of days exceeding standard temperatures

Site Name	Stream	Watershed	Days > 64° F	Days > 70° F
CGR020	Cougar Creek	Salmon Creek	1	0
CUR020	Curtin Creek	Salmon Creek	0	0
MIL010	Mill Creek	Salmon Creek	23	0
BRZ010	Breeze Creek	East Fork Lewis River	22	0
RCN050	Rock Creek North	East Fork Lewis River	37	6
CHL010	Chelatchie Creek	Cedar Creek	12	0
JNS060	Jones Creek	Little Washougal River	0	0
MAT050	Matney Creek	Lacamas Creek	39	4
GEE050	Gee Creek	Gee Creek	56	9
WPL050	Whipple Creek	Whipple Creek	23	0

2003 Temperature data logger results as number of days exceeding standard temperatures

Site Name	Stream	Watershed	Days > 64° F	Days > 70° F
CGR020	Cougar Creek	Salmon Creek	0	0
TEN010	Tenny Creek	Salmon Creek	0	0
TEN050	Tenny Creek	Salmon Creek	0	0
TEN055	Tenny Creek	Salmon Creek	0	0
MIL010	Mill Creek	Salmon Creek	36	0
CUR022	Curtin Creek	Salmon Creek	0	0
MOR010	Morgan Creek	Salmon Creek	67	5
SMN010	Salmon Creek	Salmon Creek	94	50
SMN020	Salmon Creek	Salmon Creek	89	26
SMN045	Salmon Creek	Salmon Creek	74	27
SMN075	Salmon Creek	Salmon Creek	43	0
ROC010	Rock Creek	Salmon Creek	64	6
JEN019	Jenny Creek	East Fork Lewis	52	1
BRZ010	Brezee Creek	East Fork Lewis	33	0
RCN050	Rock Creek North	East Fork Lewis	40	1
CHL010	Chelatchie Creek	Cedar Creek	24	0
JNS060	Jones Creek	Little Washougal River	0	0
LWG013	Little Washougal River	Little Washougal River	83	31
LAC050	Lacamas Creek	Lacamas Creek	78	8
LAC080	Lacamas Creek	Lacamas Creek	77	11
MAT010	Matney Creek	Lacamas Creek	66	6
FPL050	Fifth Plain Ceek	Lacamas Creek	87	28
GEE050	Gee Creek	Gee Creek	65	4
WPL050	Whipple Creek	Whipple Creek	47	0

2004 Temperature data logger results as number of days exceeding standard temperatures

Site Name	Stream	Watershed	Days > 64° F	Days > 70° F
CGR020	Cougar Creek	Salmon Creek	3	0
MIL010	Mill Creek	Salmon Creek	57	1
WDN010	Woodin Creek	Salmon Creek	78	49
ROC010	Rock Creek	Salmon Creek	25	6
MAC050	McCormick Creek	East Fork Lewis	70	14
BRZ010	Brezee Creek	East Fork Lewis	58	2
MLN010	Mill Creek North	East Fork Lewis	0	0
MAS050	Mason Creek	East Fork Lewis	68	15
RCN010	Rock Creek North	East Fork Lewis	67	31
RCN050	Rock Creek North	East Fork Lewis	60	8
CHL010	Chelatchie Creek	Cedar Creek	22	0
CHL050	Chelatchie Creek	Cedar Creek	0	0
CED050	Cedar Creek	Cedar Creek	57	32
CED055	Cedar Creek	Cedar Creek	55	29
CED070	Cedar Creek	Cedar Creek	36	0
CED080	Cedar Creek	Cedar Creek	38	1
JNS060	Jones Creek	Little Washougal River	0	0
LWG013	Little Washougal River	Little Washougal River	54	28
LWG040	Little Washougal River	Little Washougal River	42	6
LWG050	Little Washougal River	Little Washougal River	37	0
LWG080	Little Washougal River	Little Washougal River	20	0
WAS020	Washougal River	Washougal River	59	40
MAT010	Matney Creek	Lacamas Creek	59	22
FPL050	Fifth Plain Ceek	Lacamas Creek	85	52
GEE050	Gee Creek	Gee Creek	68	4
WPL050	Whipple Creek	Whipple Creek	61	2
GIB010	Gibbons Creek Mouth	Gibbons Creek	87	53
GIB030	Gibbons Creek	Gibbons Creek	51	2
GIB042	Gibbons Creek	Gibbons Creek	13	0
GIB044	Gibbons Creek	Gibbons Creek	28	0
GIB045	Gibbons Creek	Gibbons Creek	39	0
CMP010	Campen Creek	Gibbons Creek	66	2

2005 Temperature data logger results as number of days exceeding standard temperatures

Site Name	Stream	Watershed	Days > 64° F	Days > 70° F
BRZ010	Brezee Creek	East Fork Lewis	41	0
CHL010	Chelatchie Creek	Cedar Creek	26	0
CGR020	Cougar Creek	Salmon Creek	0	0
CUR022	Curtin Creek	Salmon Creek	0	0
GEE050	Gee Creek	Gee Creek	56	1
JNS060	Jones Creek	Little Washougal River	0	0
MAT010	Matney Creek	Lacamas Creek	50	7
MIL010	Mill Creek	Salmon Creek	40	0
RCN050	Rock Creek North	East Fork Lewis	49	5
WPL050	Whipple Creek	Whipple Creek	39	0
GIB030	Gibbons Creek	Gibbons Creek	22	0
GIB035	Gibbons Creek	Gibbons Creek	16	0
GIB042	Sunset View Tributary	Gibbons Creek	0	0
GIB044	Wooding Rd Tributuary	Gibbons Creek	0	0
GIB045	Gibbons Creek	Gibbons Creek	20	0
CMP010	Campen Creek	Gibbons Creek	31	0

Salmon Creek Temperature Survey: NE 167th Ave to NE Risto Rd

During August 2005, Water Resources conducted a one-day temperature survey to locate possible sources of a 5-degree F. temperature increase within a three mile long reach of Salmon Creek.

Results of the survey: The survey found that the temperature problem discovered in 2003 continued to be present. Sources included a lack of riparian shading on Salmon Creek and small tributary streams having in-line ponds. Tributary streams lacking in-line ponds contributed cool water. The results were forwarded to Clark Public Utilities Riparian Planting Program and the area is now included in their 2007 work plan.

Monitoring Resource Center

Since 2003, the Water Resources Program has operated a lending library of stream and lake monitoring equipment, informational materials, and monitoring protocols for use by the public, teachers, and local agencies. Equipment is professional grade and includes flow gauges, water quality meters, temperature loggers, macroinvertebrate sampling tools, and secci discs. Monitoring Section scientists are available to advise volunteers on project design and provide training on the use of monitoring equipment. Groups or agencies that made use of the center in 2005 include:

- Vancouver-Clark Parks Americorp Volunteers
- Battle Ground High School
- Columbia Springs Envirnonmental Education Center
- Fish First
- Lower Columbia Fish Enhancement Group
- Clark County Health Deptartment.
- Lower Columbia River Estuary Partnership

- Environmental Information Cooperative
- Clark Public Utilities
- Water Resources Education Center
- Vancouver ESD 112
- US Fish and Wildlife Service
- Washington Dept. of Ecology
- City of Washougal

S5.B.5. Fiscal Analysis

Permit Requirement

A fiscal analysis, covering the term of the permit, of the capital, and operation and maintenance expenditures necessary to implement the stormwater management program, and a description of staff, equipment, and support capabilities to implement the stormwater management program. The fiscal analysis shall include a description of the source of funds that are available or are proposed to meet the necessary expenditures.

Summary of Compliance Activities

The fiscal analysis requirement applies to submittal of the stormwater management program in the 1998 NPDES Part 2 application (revised in 1999). Each program element in the SWMP and the Special Condition S9 included a description of the estimated annual budget for each current and proposed new activity. Funding sources were specified for current activities. A new stormwater fee, termed the Clean Water Program Fee was established to fund new activities.

Part 3 of this report, "Differences between planned and actual expenditures by component" provides information describing budgets and expenditures.

The county uses financial tracking systems to account for stormwater fee revenue expenditures by permit component for most new activities funded by stormwater fee revenue. However, expenditures for some ongoing pre-permit activities are almost impossible to track by component because they are not billed to a unique expense code that can be matched to the permit component.

Revenue Sources for Ongoing Pre-Permit Activities

Development fees, the General Fund, the Solid Waste Program Fund, and the Road Fund are generally the revenue source for ongoing pre-permit activities.

Clean Water Program Fund for New Activities

Clark County established a stormwater fee (Clean Water fee) to pay for increased stormwater management under the permit (the permit condition S9 activities). The fee was approved in October 1999 and the first annual billing was mailed on June 20, 2000. All Clean Water fee and water quality grant revenue is placed in a special fund called the Clean Water Program Fund. Stormwater program expenses are coded and tracked so that

they can be matched to specific projects or program activities, program elements such as monitoring or administration, and the most applicable permit component.

S5.B.6. Data Maintenance

Permit Requirement

A mechanism for gathering, maintaining, and using adequate information to conduct planning, priority setting, and program evaluation activities. The information and its form of retention shall include but not be limited to:

1. *Mapping of known municipal separate storm sewer outfalls;*
2. *Mapping of tributary conveyances, and the associated drainage areas of major municipal separate storm sewer outfalls;*
3. *Maps depicting existing land use;*
4. *A Map depicting zoning; and*
5. *A data base, including at least the following information: precipitation records; stormwater quality and quantity records; water quality and physical characteristics of receiving water that may be impacted by stormwater; and a description and location of major structural BMPs and other structural controls for stormwater discharges.*

Summary of Compliance Activities

The Department of Assessment and GIS collects and maintains the largest amount of county GIS information. Public Works Water Resources Program maps storm sewer infrastructure and maintains GIS data for the storm sewer system and specific stormwater management information such as watershed boundaries, detailed stream mapping, and GIS information associated with monitoring projects. The Water Resources Program maintains stormwater program monitoring data.

Urban Storm Sewer Systems

Urban storm sewer system mapping consists of creating an inventory and GIS map of storm sewer systems in urban areas of unincorporated Clark County. The overall goal is to use the best available information to complete the storm sewer GIS inventory and mapping. During 2005, work focused on auditing engineering plans for subdivisions and road projects to find the best available plans to improve the completeness and accuracy of the GIS data. As new developments are completed, the storm sewer information is entered into the GIS within two weeks of receipt of the as-built plan sets.

Public Stormwater Facilities Inventory and Mapping

During 2005, work continued on mapping and describing public stormwater facilities. Public Works maintains GIS information describing facility type, design and flow criteria, and catchment area treated by the facility. During 2005, the public facilities database was expanded to include 671 facilities at 578 site locations.

Private Facilities Inventory and Mapping

During 2005, mapping work from engineering plans continued to add private stormwater facilities to the GIS storm sewer database. The total number of private facilities was increased to 903 sites.

Rural Roadside Ditches

Rural drainage system mapping consists of inventorying and mapping roadside ditches along county right-of-way, where available, in areas lacking storm pipe systems. During 2005, work focused on mapping approximately 15.5 miles of ditches and culverts along county roads in Whipple Creek watershed.

Development Project Drawings and Site Plan Sheets

The total numbers of plan sheets in the system are:

- 6,948 Subdivision and Short Plat Drawings
- 4,096 Site Plan Images

All of these drawings and plan sheets are linked to internet-based maps. These maps are available for public viewing on the county Web page and were used by Public Works to verify storm sewer and facility mapping in the GIS database.

GIS Land Use and Water Resource Data

The Department of Assessment and GIS has a library that includes land use descriptions, zoning classifications, basin boundaries, water bodies, and other information useful for stormwater management. Some of this information may be viewed through the county Web site.
http://gis.clark.wa.gov/imf/imf.jsp?site=mapsonline&CFID=13807&CFTOKEN=47339891

GIS data other than storm sewer systems that are maintained and updated periodically by the GIS Department or Public Works include:

- Parcel boundaries and attributes, including land use and zoning
- Administrative boundaries
- Urban growth boundary
- Comprehensive land use plan for GMA
- Zoning
- Easements
- Subdivision boundaries
- Public and private roads
- Orthophotographic images of the entire county
- LiDAR tree canopy
- Detailed land cover derived from infrared images and LiDAR
- LiDAR derived stream centerlines and open water bodies
- 2-foot topography for urban and rural areas
- 4-foot topography in predominately forest areas

- Stormwater Fee Parcels
- Commercial, industrial, public facility, and road impervious area measurements
- Water Resources Program sample sites
- Watershed, subwatershed, and catchment boundaries

GIS data at the GIS Department or Public Works Department that may or may not be periodically updated:

- Land cover from a July 2000 Landsat image
- Sanitary sewer lines
- Land use
- DNR/SSHIAP water bodies
- Wetlands Model Atlas for Lake River Basin, Washougal River Basin, and Gee Creek Watershed
- Conservation easements
- State and federally owned lands

Regional Wetland Inventory

In 2005, the county GIS department, Ecology staff, and consultants created a wetland predictive model using LiDAR topography, infrared orthophotography, land cover, and other GIS data. The model was designed to attempt to map wetlands by hydrogeomorphic class. The principal products are an atlas of "probable and mapped wetlands" and reports summarizing the field observations and a set of reference sites

Stormwater Fee Database

In 2000, Clark County created a county-wide storm sewer fee database which includes every tax lot in unincorporated Clark County that has assessed improvements valued at $10,000 or more. The fee billing system also includes the amount of impervious area for each non-residential lot (businesses, industries, public facilities, county roads, state highways, and government facilities).

Centralized Water Quality and Quantity Database

Water Resources developed a Microsoft SQL Server database to store water quality, biological, hydrological, and physical habitat data on the Water Resource Program server. The submittal guidelines of Ecology's Environmental Information Management System (EIMS) were used as a data standard. The monitoring sites in the database are linked to GIS locations.

Water Resources continued entering project data into the Water Resources Database, with a primary goal of entering all data collected since issuance of the Phase I permit in 1999 and legacy data from significant monitoring projects completed before the permit program. The majority of data from Water Resources' ongoing monitoring projects are entered into the system, with the exception of continuous stream flow and precipitation data. These datasets are verified and entered into formatted spreadsheets for loading into the database.

A separate volunteer monitoring database is established for managing Clark County Volunteer Monitoring Program data. The volunteer database is a Microsoft Access database that allows the storage of habitat survey data, volunteer contact information and training history, and equipment lending through the county's monitoring resource center. The database follows the same standard as the central Water Resources database.

Private Facilities Maintenance and Source Control BMP Database

Water Resources maintained a Microsoft Access database for recording and reporting private storm sewer maintenance inspections and source control BMP implementation.

ArcHydro Mapping of Whipple Creek Watershed

In 2005, Water Resources finalized watershed boundary and stream reach mapping in Whipple Creek watershed using ESRI ArcHydro on LiDAR topography, storm sewer inventories, orthophotography, and field check information. The program mapped approximately 102 reaches and associated catchments for the 12 square mile watershed.

S5.B.7. Watershed-wide Coordination

Permit Requirement

Consider opportunities for watershed-wide coordination mechanisms to address the following during the term of the permit:

1. *Development of coordinated stormwater management programs for shared water bodies;*
2. *Coordination of data management and mapping activities for compatibility; and*
3. *Coordination of monitoring and modeling activities to develop comparable data sets among permittees when estimating pollutant concentrations and loads, evaluating impacts, and addressing controls.*

Summary of Compliance Actions

Clark County endeavors to coordinate with local municipalities and agencies that play a role in water resource or stormwater management. Examples from 2005 include:

- Clark County Public Works has a lead role in promoting and supporting the Vancouver Lake Watershed Partnership
- Clark County is an active member of the Lower Columbia Fish Recovery Board
- Clark County is an active member in the WRIA 27/28 Planning Unit
- Water Resources coordination of volunteer monitoring for TMDL programs in Gibbons Creek watershed
- Water Resources coordination with Ecology for Salmon Creek Bacteria TMDL
- Water Resources coordinated field support for Ecology temperature investigation for East Fork Lewis River temperature TMDL
- Water Resources holds monthly Clean Water Commission meetings on stormwater issues
- Water Resources staff level coordination of pollution reduction activities with the City of Vancouver

- Water Resources promotes standardized monitoring parameters and standard procedures for data gathering in Clark County
- Water Resources is implementing an intergovernmental agreement with Clark Public Utilities for Salmon Creek watershed data gathering
- Water Resources technical assistance and coordination with Clark Public Utilities' monitoring program in Cedar Creek and East Fork Lewis River
- Water Resources has informal agreements with Yacolt and Ridgefield for placing rain gauges and stream gauges on city property
- Clark County GIS maintains a centralized, county-wide GIS system for local storm drainage mapping (currently Clark County and the City of Camas use the system)
- Public Works operation of a street waste decant facility which is utilized by Vancouver, Camas, Washougal, and WSDOT, and is available to other Clark County municipalities
- Clark County participates in the Regional Coalition for Clean Rivers and Streams which includes Clark County, Vancouver, and jurisdictions throughout the Portland, Oregon metropolitan area
- Water Resources provides funding the cooperative Watershed Stewards and Living on the Land education program at WSU Extension

S5.B.8.a. New Development, Redevelopment and Construction Site Runoff

Permit Requirement

A program to control runoff from new development, redevelopment and construction sites that discharge to the municipal separate storm sewers owned or operated by the permittee. The program must include: ordinances, minimum requirements, and best management practices (BMPs) equivalent to those found in Volumes I through IV of Ecology's Stormwater Management Manual for the Puget Sound Basin (1992 edition), permits, inspections, and enforcement capability. The program must also include a process to make available copies of the "Notice of Intent for Construction Activity" and copies of the "Notice of Intent for Industrial Activity" to representatives of proposed new development and redevelopment.

Summary of Compliance Activities

Clark County development regulations apply to project sites that discharge to county storm sewers or waters of the state. Clark County Community Development Department implements the following development regulations to control stormwater's adverse influence on streams, wetlands, lakes, groundwater, and wildlife habitat:

- Stormwater and Erosion Control Ordinance
- Wetlands Protection Ordinance
- Habitat Preservation Ordinance
- Critical Aquifer Recharge Areas Ordinance

Clark County Public Works Department issues and enforces permits for utility construction in county right-of-way. These projects are also subject to the Stormwater and Erosion Control Ordinance.

Equivalence to the Stormwater Management Manual for the Puget Sound Basin (Washington Department of Ecology, Feb. 1992)

The county stormwater and erosion control code was revised for equivalence to the state manual and adopted by the Clark County Board of County Commissioners in July 2000. In April 2001, Ecology formally acknowledged that Clark County code meets the permit equivalency requirement. In November 2003, Chapter 13.29 Clark County Code was combined with other development regulations to create the new Title 40 Unified Development Code. The code revision was performed to simplify and better organize development regulations and is policy neutral. No revisions influenced stormwater and erosion control code equivalence to the 1992 Ecology stormwater manual. Stormwater and erosion control are now covered under Chapter 40.380 CCC.

Erosion Control Certification

Beginning January 1, 2001, County code required all development contractors to be trained and certified in erosion and sediment control by an organization recognized by the Community Development Department Director. In October 2005, this policy was changed to discontinue local certification and recognize the same certification courses accepted by the Department of Ecology. During 2005, local certification continue to be acceptable.

Engineering Services Compliance Measures

Stormwater and erosion control engineering design plans are only approved after detailed engineering review for conformance to stormwater code. Building permits are not issued until the subdivision stormwater system is complete.

A low number of Engineering Services project inspections noted erosion control certifications because certifications were verified before the projects begin construction and then rarely noted in follow-up field inspections.

2005 Stormwater and Erosion Control Engineering Plan Review

Number of project plan with Stormwater Features	Plans Approved	Stormwater Features in Compliance
179	177	177

2005 Development Services Inspections

Reporting Item	Totals
# of active construction projects	249
# projects with initial inspection for buffer stakes and sediment control	181
# projects with monthly erosion control log	14
# erosion control inspections	1436
# projects with erosion control certification	181
# stop work orders for erosion control violations	16
# citations for erosion control violations	1
# stormwater control inspections	1292
# stop work orders for storm control violations	0
# citations for storm control violations	0
# construction acceptances	74
# maintenance warranty inspections	56
# projects receiving maintenance warranty inspection at 22 months (for county ownership)	27
Percent projects receiving maintenance warranty inspection at 22 months (for county ownership)	100%
# warranty inspections where notice of deficiencies sent out	18
Percent warranty inspections where notice of deficiencies sent out	67%
# final warranty release	27

Building Division

Building Division reviews, approves, and inspects projects requiring building, mobile home placement, plumbing, and mechanical permits in unincorporated Clark County. The division reviews and approves all types of building permit applications ranging from small-scale remodel projects to large, multi-story commercial buildings and apartments. This includes enforcing erosion control regulations in Chapter 40.380 Stormwater and Erosion Control on these sites.

2005 Building Division Erosion Control Compliance Measures

Quarter	Inspections	Correction Orders	Stop Work Orders	Citations
Jan.- March	2083	169	1	0
Apr. - June	2031	170	0	0
July – Sept.	1883	153	0	0
Oct. – Dec.	1841	281	0	0
Totals	**7838**	**773**	1	0

Public Works Utility Permit Inspections

All public utilities permit work in right-of-way is required to have a utility permit and follow the design specifications. These projects are also subject to erosion control requirements of Chapter 40.380 CCC, Stormwater and Erosion Control. Generally, statistics for the reporting period suggest each permitted activity received an average of

about three inspections. Generally, there are few stop work orders because education actions solved problems.

2005 Utility Inspection Compliance Measures

Permits Issued	Inspections	Stop Work Orders	Projects Lacking Permit	Erosion Control Violations	Erosion Control Education Actions
1137	3115	3	3	0	40

Public Works Road Program Plan Review

During 2005, all Public Works Department project design plans were submitted to Community Development for review and approval. The process is identical to private development projects.

Public Works Road Program Construction Compliance

County road project contractors are required to conform to local and state codes and laws by contract. This includes construction of stormwater facilities and erosion control measures. The standard construction contract includes individual bid items for erosion and sediment control, and stormwater pollution prevention BMPs. There are also bid items and payment schedules for individual water quality items, such as a construction entrance and wash rack, or an erosion control blanket.

At least one construction management staff person is assigned to each project to review these measures. A Public Works site inspector visits the site each day to ensure the compliance with erosion control plans, identify potential problems before they become issues, and require changes, as necessary. Inspectors also ensure that stormwater treatment and flow control structures are build according to approved plans. In the rare instance where changes to the approved stormwater design are required during construction, the Construction Change Order process includes review by the designer and the Engineering Program Manager to ensure that all changes meet the original design standards and comply with all applicable permits and standards.

2005 Code Enforcement Division Compliance Measures

Code Enforcement Division enforces building, development, and environmental regulations. One Code Enforcement Officer works full time on permitted development projects and another code enforcement officer addresses activities occuring mainly at single family residential projects and complaint response.

2005 Code Enforcement & Development Inspection Division's Inspections and Violations

Type of Inspection	Grading	Erosion	Water Quality	Stormwater	Wetland/ Habitat	Other	TOTAL
Complaints	148	209	9	70	214	3	653
Routine Inspection	0	188	0	9	35	0	232
Monitoring follow up	2	218	0	125	3	0	348
Public Relations	3	9	8	14	4	0	38
TOTAL	**153**	**624**	**17**	**218**	**256**	**3**	**1271**

	Grading	Erosion	Water Quality	Stormwater	Wetland/ Habitat	Other	TOTAL
Violations	**69**	**135**	**6**	**40**	**102**	**5**	**357**

2005 Code Enforcement Resolutions

Type of Resolution	Grading	Erosion	Water Quality	Stormwater	Wetland/ Habitat	Other	TOTAL
Personal Contact	107	165	15	60	152	1	500
Education	31	15	2	29	25	4	106
Letter	30	72	1	19	26	3	151
Correction Notice	67	100	10	54	124	0	355
Citation	1	8	1	0	0	0	10
Notice and Order	8	0	0	0	5	0	13
Stop Work Order	11	16	0	0	3	0	30
Hearing	0	0	0	0	1	0	1
Referral to Other Agency	82	105	0	38	63	0	288
TOTAL	**337**	**481**	**29**	**200**	**399**	**8**	**1454**

Notice of Intent Forms

Development and redevelopment projects subject to NPDES industrial construction permits and industrial stormwater permits typically trigger stormwater and erosion control requirements under Chapter 40.380 CCC. Community Development engineering staff's project review usually identifies the state and local permits that each project would require, including state stormwater permits. Applicants are referred to the Department of Ecology Web page for the current application forms.

Regulatory Program Monitoring

Community Development uses a set of criteria to monitor implementation of the Stormwater and Erosion Control Ordinance. These are included as reporting items in this permit component.

S5.B.8.b. Control of Runoff from Existing Residential and Commercial Development (includes retrofitting)

Permit Requirement

Appropriate treatment and source control measures to reduce pollutants in runoff from existing commercial and residential areas that discharge to municipal separate storm sewers owned or operated by the permittee.

Summary of Compliance Activities

Ecology further defines this requirement in condition S9.E., as a stormwater capital program to plan and build stormwater facilities to retrofit existing development. During 2005, the county stormwater management program continued the process to identify, prioritize, and build stormwater retrofit projects. Additionally, stormwater retrofit facilities were designed and built as a part of the County Road Capital Improvement Program.

Whipple Creek Stream Assessment

During February through April 2005, Water Resources conducted an inventory of over 20 miles of urban, and rural stream reaches in Whipple Creek watershed. The inventory followed the protocols set forth by the Center for Watershed Protection, (March 2004) and included a variety of stormwater related problems and opportunities. By the end 2005 approximately 300 sites were inventoried and compiled into about 50 possible project sites.

Whipple Creek Stormwater Basin Planning Project

In fall 2005, Water Resources began a project to develop a template and process for developing stormwater basin plans and a countywide list of prioritized stormwater capital improvement projects.

Stormwater Program capital improvement activities

The stormwater program's capital activities in 2005 focused on designing and building projects that were planned during 2003 and 2004. Some additional work was performed on projects built in 2004, such as planting maintenance. One project to retrofit a part of Cougar Creek basin with infiltration facilities was dropped after initial field testing for soil properties. The stormwater program is also partnering with the Road Program to plan and build regional facilities in the urbanizing Curtin Creek and Mill Creek subwatersheds of Salmon Creek watershed.

Clean Water Fund Stormwater Projects completed, under construction or planned during 2005

Project #	Name	Description	Treatment Standard and treated impervious area	Flow Control Standard and impervious area treated	Status
400291	Gabbert Stormwater Facility	The project will provide increased detention and treatment for existing roadside ditches in Mill Creek headwaters.	70% of the 2 yr 24 hour storm	Approximately 10 acre feet of detention storage	Design 50% complete
400581	Curtin Creek Enhancment Area	The Curtin Creek Enhancement converts a drainage ditch and ? acres of reed canrry grass wetland into a wooded flood plain pond and more natural steram channeld. The multi-objective project includes stormwater treatment and flow controls for existing area, as well as road projects.			Designed and ready to bid
400281	Salmon Creek / Hwy 99 North Storm Water Facility	Retrofits an existing stormwater system to add water quality treatment. Drainage area includes Highway 99 and drains south into Salmon Creek. The project will also reconfigure several stormwater outfalls to Salmon Creek.	40% of the 2yr 24 hr storm for 24 acres (3 cfs)		Completed

Road Project Retrofits

Public Works road improvement and widening projects include stormwater controls that retrofit existing drainage systems under two main circumstances:

- The replacement of existing roadway that lacks stormwater treatment and flow controls
- The addition of treatment and flow control capacity for existing county stormwater systems that drain into a road project site

The policies that drive road project retrofits are compliance with county stormwater code requirements to add stormwater controls for "redeveloped" roads and compliance with ESA requirements. In some cases, Public Works road projects will add stormwater treatment and flow control capacity for existing drainage routed into the project area.

Retrofits mainly occur as part of road widening projects where an existing road lacks stormwater treatment and flow controls. Typically, about half of the stormwater facilities on road projects are built to retrofit existing right-of-way to current stormwater standards. The following table is a cost estimate for road projects that include stormwater treatment and flow control retrofitting for projects that incurred more than $1,000 expenses in 2005. The 1999 stormwater management program did not include this type of stormwater capital project.

Road Program Stormwater Retrofits

WO #	Project	2005 Stormwater Retrofit Costs
301422	NE St Johns Rd	$124,875
310122	NE 72nd Avenue	$42,885
311022	NE 76th Street	5,517
311522	NE 10th Avenue Phase II	$6,187
320322	NE 117th St	$150,112
330422	NE 63rd St	$64,217
330522	NE 99th St	$3,328
331822	NE 172nd Ave	$163,753
381022	NW 117th/119th	$369,338
		$930,212.00

S5.B.8.c. Operation and Maintenance of Municipal Storm Sewers

Permit Requirement

Operation and maintenance programs for new and existing stormwater facilities owned or operated by the permittee, and an ordinance requiring and establishing responsibility for operation and maintenance of other stormwater facilities that discharge into municipal separate storm sewers owned or operated by the permittee. The programs shall include a strategy for addressing the disposal of street waste, decant, and cooperative efforts with Ecology and other entities to develop decant solutions.

Summary of Compliance Activities

Public Works Operations Division maintains all county-owned storm sewers and roadside ditches. Private facilities and storm sewer systems are maintained by the owner or operator. The Stormwater Facility Maintenance Manual adopted by reference under Chapter 13.26A CCC has standards and practices for maintaining all existing public and private storm sewer systems. The county owns and operates a road waste decant facility which also serves other governments' maintenance programs.

County Storm Sewer Maintenance

During 2005, Clark County operated and maintained storm sewers according to schedules and standards established for the approved NPDES stormwater management program. The Stormwater Facility Maintenance Manual includes source control, erosion control, and vegetation management standards and practices which apply to all private and public stormwater facilities. In addition, the Water Quality BMP Manual for Operation and Maintenance of Publicly Owned Property includes source control, erosion control, and vegetation management standards and practices for activities that maintain roads, stormwater facilities, public facilities, and park lands.

Regional Road Maintenance ESA Program

In 2004, Clark County became a member of the Regional Road Maintenance ESA Program and began implementing the program. The program also applies to the O and M

of stormwater infrastructure associated with streets and roads. The program seeks to protect salmon by implementing a program of BMPs for road and storm sewer maintenance.

2005 Stormwater Facility Maintenance Compliance Measures

Facility/Activity	NPDES-Required Activity	**Performance Measures**	**Number of Activity**
Catch basins	Inspect 1x/yr clean following maintenance standards	# catchbasins owned by CC # catchbasins inspected # catchbasins cleaned percent catchbasins cleaned	Approx. 7,500 all inspected 6,681 cleaned 89 % cleaned
Manholes	Inspect 1 x/yr clean following maintenance standards	# manholes owned # manholes inspected # manholes cleaned percent cleaned	Approx. 2400 all inspected 28 cleaned <1 %
Drywells	Inspect /clean every 3-5 years	# drywells owned # drywells inspected # drywells cleaned percent cleaned	Approx. 900 all inspected 86 cleaned 10 %
Detention/Retention facilities	Mow 3 or 4 x/yr or maintain vegetation as natural	# R/D facilities owned # mowings # other maintenance done percent compliance	198 892 all weeded 100 %
Biofiltration swales	Mow 3 or 4 x/yr other activities as per manual	# swales owned # times swales mowed description of other activity percent compliance	386 5 times each cleaned/weeded 100 %
Spill response-stormwater facilities	Procedures in place	# of kits in vehicles # of vehicles percent of vehicles w/spill kits # of spills reported to Ecology	169 169 100 % 1
Storm sewer pipe	Inspect/maintain as necessary	# feet cleaned	6,578
Maintenance tracking	Use computer based system to track activities	Activity Tracking Database still in use	

Maintenance Tracking System

The county currently uses a Microsoft Access® database to track maintenance activities for the permit.

Private Stormwater Systems Inspection

Public Works has an inspector who checks private storm sewer facilities for compliance with maintenance standards. Enforcement follows a procedure of providing clear guidance on required maintenance, referring problem sites to source control specialists, and referring non-responsive sites to code enforcement.

2005 Compliance Measures for Private Storm Sewer Maintenance

Number	Reporting Item
901	Private stormwater systems had **maintenance** inspections
804	Private stormwater systems meeting **maintenance** requirements
47	Private stormwater systems not meeting **maintenance** requirements
45	Private stormwater systems referred/provided **maintenance** info/education
1	Private stormwater systems referred to Code Enforcement for **maintenance**

Private Stormwater Source Controls Enforcement

Public Works stormwater education staff inspects sites that are likely to require source controls or are the subject of a complaint. The program provides source control technical assistance and refers non-responsive operators to Code Enforcement Officers.

2005 Compliance Measures for Private Storm Sewer Source Controls

Number	Reporting Item
50	Private stormwater systems had **source control** inspections
11	Private stormwater systems meeting **source control** requirements
33	Private stormwater systems not meeting **source control** requirements
32	Private stormwater systems referred/provided **source control** info/education
4	Private stormwater systems referred to Code Enforcement for **source control**

Decant Facility Operation

Clark County operates a storm sewer sludge decant facility to manage materials pumped from catch basins, drywells, and other storm sewer components. Liquids are treated and discharged to small, clay-lined retention ponds, which can be emptied to the sanitary sewer. Solids are managed and disposed of, or reclaimed under a solid-waste handling permit issued by the Clark County Health Department. WSDOT, and the Cities of Vancouver, Camas, Washougal, and Battle Ground, also use the facility. Other Clark County municipalities have the option of contracting to use the facility.

S5.B.8.d. Operation and Maintenance of Roads and Highways

Permit Requirement

Practices for operating and maintaining public streets, roads and highways, including rest areas, to reduce stormwater runoff impacts.

Summary of Compliance Activities

Clark County maintained roads and streets according to schedules and standards established for the approved NPDES stormwater management program. Public Works Operations Division and Parks Maintenance follow standards and practices in the Water Quality BMPs for Operation and Maintenance of Publicly Owned Property Manual. The manual was adopted as county policy in July 2000 for the use of pesticides and fertilizer on county lands and by Public Works for road maintenance activities.

Regional Road Maintenance ESA Program

Clark County has been actively involved with the Regional Forum since 2003. This group assisted the county in developing a Regional Road Maintenance Program that is designed to meet the requirements of the Endangered Species Act (ESA). On August 7th, 2004 NOAA Fisheries approved Clark County's Regional Road Maintenance Program and determined that it was compliant with the ESA. The Program seeks to protect salmon and steelhead by relying on the extensive use of pre-approved BMPs for routine maintenance activities. The Program applies to the Operation and Maintenance of stormwater infrastructure that is associated with streets and roads.

Critical Areas Atlases

Clark County critical areas such as stream buffers and wetlands are mapped in a special county road atlas. Each crew chief has a copy and operators of mowers and mechanical brush cutters are also provided copies. Crews and operators are instructed to stop work when approaching a critical area and either seek advice on the allowed maintenance actions or follow the guidelines of the Regional Road Maintenance Manual.

2005 Compliance Measures for Road and Street Maintenance

Facility/Activity	NPDES-Required Activity	**Performance Measures**	**# Activities Completed**
Sweeping streets	Residential 9 x/yr.; arterial 12 x/yr.	# arterial sweeper sections # residential sweeper sections # times each arterial section swept # times each residential section swept percent compliance	45 42 15 11 100 %
Roadside ditches/culverts	Preventative Maintenance on all	# ditches inspected # ditches cleaned # culverts inspected # culverts cleaned	all inspected 8 % all inspected 8 %
Spill response-stormwater facilities	Procedures in place	# of kits in vehicles # of vehicles percent of vehicles w/spill kits # of spills reported to Ecology	169 169 100 % 10
Litter removal	4 x/yr. On arterials, as needed	# times litter picked up on arterial roads	282

S5.B.8.e. Consideration of Water Quality in Flood Control Projects

Permit Requirement

A program to include water quality management considerations into flood management projects, including a schedule for retrofitting existing projects to the extent possible.

Summary of Compliance Activities

Clark County flood control projects are limited to small drainage maintenance and repair activities. There were few drainage projects during the reporting period and none of a scale that made it feasible to add water quality retrofits.

S5.B.8.f. Reduction of Water Pollution from Pesticides, Herbicides, and Fertilizers

Permit Requirement

A program to reduce pollutants associated with the application of pesticides, herbicides, and fertilizer discharging into municipal separate storm sewers owned or operated by the permittee.

Summary of Compliance Activities

Public Works follows the pesticide and fertilizer use practices adopted by county policy in 2000. The county adopted an environmentally responsible purchasing policy in 2004, which includes criteria for disqualifying certain pesticides. The Solid Waste Program has waste disposal and pickup programs to discourage improper disposal.

Plan and Schedule for Minimizing WQ Impacts from Pesticides and Fertilizers

The Clark County Water Quality BMP Manual for Operation and Maintenance of Publicly Owned Property includes standards and practices for use of pesticides and fertilizers. It was adopted as county policy in July 2000 and is being implemented by Public Works for stormwater facility, road, and park maintenance.

The Stormwater Facility Maintenance Manual, adopted as code in July 2000, provides guidelines for vegetation management of public and private stormwater facilities. A stormwater facility inspector inspects private facilities and provides the public with maintenance information (see S5.B.8.c.).

Clark County Environmentally Responsible Purchasing Policy

Clark County adopted an Environmentally Responsible Purchasing Policy in 2004 that includes a section addressing the purchase of landscaping and vegetation maintenance products which includes pesticides. The policy established a set of criteria, any of which will disqualify a pesticide from purchase. A waiver process requires further examination of the pesticide by the Environmentally Responsible Purchasing Policy Team to determine if a more environmentally friendly alternative exists. If none are found, the pesticide can be purchased and used, but with specific limiting guidelines.

Solid Waste Program Hazardous Waste Drop Off Sites

Public Works Solid Waste Program continued (non-education) projects to encourage proper disposal of hazardous waste including pesticides and fertilizers. The household hazardous waste and small generator waste collection and disposal program is a primary tool for reducing the amount of pesticides and fertilizers in the environment. It is discussed in greater detail under “S5.B.8.g. Illicit Discharge, Improper Disposal, and Spill Abatement”.

S5.B.8.g. Illicit Discharge, Improper Disposal, and Spill Abatement

Permit Requirement

A ongoing program to detect, remove and prevent illicit discharges and improper disposal, including spills, into the municipal separate storm sewers owned or operated by the permittee.

1. *Each permittee shall effectively prohibit illicit discharges to the municipal separate storm sewers owned or operated by the permittee other than those authorized under a separate NPDES permit. Unless identified by either the permittee or Ecology as significant sources of pollution to water of the state, the illicit discharges listed in 40 CFR 122.26(d)(2)(iv)(B)(1) need not be prohibited from entering the municipal separate storm sewers owned or operated by the permittee. As necessary, the permittee shall incorporate control measures in the stormwater management program to ensure these discharges are not significant sources of pollutants to waters of the state.*
2. *The program shall include ongoing field screening, using the methods required in 40 CFR 122.26(d)(1)(iv), or alternative methods that have been approved by Ecology. The field screening program shall focus on urbanized areas.*
3. *The program shall incorporate best management practices and procedures to prevent, contain, and respond to spills or improper disposal into the municipal separate storm drains owned or operated by the permittee.*

Summary of Compliance Activities

Clark County continues to enforce the Water Quality Ordinance adopted in November 1998, using inspections and an education program for businesses and private stormwater facility inspections. Public Works has spill kits in many vehicles. Public Works also works with businesses and the general public to collect and dispose/recycle oil, hazardous waste, and moderate waste. The storm sewer screening program planned an outfall survey of urbanized parts of Whipple Creek Watershed.

Water Quality Ordinance

The Community Development Department's Code Enforcement Division and the Public Works Department implement the Water Quality Ordinance. Code Enforcement responds to complaints and uses both education and enforcement actions. Public Works response focuses on source control BMP information and education through site visits and inspections. This also includes routine inspection of almost all private stormwater facilities permitted after 1994. The reporting for source control and storm sewer maintenance is under component S5.B.8.c. Storm sewer O and M.

Storm Sewer Screening

Storm sewer screening is described as part of the monitoring program under condition S5.B.4.

Waste Collection and Disposal Programs

Public Works Solid Waste Program operates several programs to collect and properly dispose of hazardous waste material. Clark County believes these programs reduce the amount of waste that is improperly disposed of to storm drains, the ground, or water bodies.

Mobile/Satellite Hazardous Waste Collection

Performance Measure	**2005 Result**
Number of sites	14
Number of participants	1,405
Amount of household hazardous waste	114,476 Pounds

Motor Oil Collection

Performance Measure	**2005 Result**
Amount of used oil collected at household hazardous waste sites	270,400 pounds
Amount of used oil collected curbside	602,880 pounds
Amount of used oil collected at used oil collection sites	205,440 pounds

Moderate Risk Waste Collection Sites

Performance Measure	**2005 Result**
Number of Sites	5
Number of participants	8,515
Total hazardous waste collected at fixed sites (less latex paint and e-waste)	943,679 pounds
Amount of latex paint collected for recycling	327,161 pounds
Amount of latex paint recycled	168,105 pounds

Curbside Pickup

Solid waste contracts provided for curbside pick up of oil (see oil table above) and antifreeze (23,920 pounds in 2005). This reduces the chance that these materials will be dumped into a storm sewer or enter a water body by another route.

Spill Response

Public Works follows practices described in the Water Quality BMPs for Operation and Maintenance of Publicly Owned Property manual. Public Works has limited capacity for responding to hazardous materials spills; however, incidental spill response kits are provided for most of the Operations Division's vehicles. Spill response awareness training is performed annually. In addition, 21 employees, representing each service area and the Salmon Creek Treatment Plant, have taken eight hours of Hazardous Materials (296-834-30005 Operations Level) training.

Spill response is coordinated through the Clark Regional Emergency Services Agency and the Department of Ecology. Policy is in place for notification of the appropriate

responder for abandoned materials. Spills other than small vehicle fluid spills are referred to the Department of Ecology directly or through the 911 system.

2005 Spill Response Measures

Facility/Activity	NPDES-Required Activity	**Performance Measures**	**# Activities Completed**
Spill Response-stormwater facilities	Procedures in place	# of kits in vehicles # of vehicles percent of vehicles w/spill kits # of spills reported to Ecology	169 169 100 % 11

S5.B.8.h. Industrial Stormwater Pollution Reduction

Permit Requirement

A program to reduce pollutants in stormwater discharges from industrial facilities that discharge into municipal separate storm sewers owned or operated by the permittee, and ensure compliance with local ordinances. The program shall include, but not be limited to:

1. *Procedures to identify industrial facilities that discharge into the municipal separate storm sewers owned or operated by the permittee.*
2. *A field inspection program to assess compliance with local ordinances adopted in accordance with Special Condition S5.B.3; and*
3. *A program to monitor and control pollutants in stormwater discharges to municipal separate storm sewers owned and operated by the permittee, from industrial facilities that the permittee determines are contributing a substantial pollutant loading to municipal separate storm sewers. For industrial facilities which require coverage under Ecology's "Baseline General Permit for Stormwater Discharges Associated with Industrial Activity," this program shall be developed jointly with Ecology.*

Summary of Compliance Activities

There is relatively little industrial area in unincorporated Clark County. Industrial sites are generally scattered individual operations, small industrial areas, or gravel mining and processing facilities covered by state waste discharge permits. County actions are limited to those described here and actions described for private storm sewer inventory, inspection, and maintenance requirements for Component S5.B.8.c. and Component S5.B.8.g.

Inventory

At one point, Water Resources maintained an inventory of businesses subject to the Water Quality Ordinance using the stormwater fee billing database and Assessor's office records of parcel land use. However the land use data was not reliable and use of this inventory was discontinued. Currently, Water Resources visits sites based on an informal system of revisiting sites during routine area visits. Actions, related to specific sites are tracked in an Access database

The private stormwater facility maintenance inspection (S5.B.8.c.) and inventory (S5.B.6) includes almost all industrial sites built under stormwater standards in place since 1994.

Field Inspection

The storm sewer maintenance and source control inspections are described under S5.B.8.c.

Industrial Stormwater Compliance

Dry weather storm sewer screening, source control inspections, and storm sewer maintenance inspections suggest that there are few if any industrial sites that *"contribute substantial pollutant loading"* beyond typical commercial sites.

Pollution problems for facilities covered by NPDES industrial stormwater permits are referred to the Department of Ecology for enforcement. Water Resources informally coordinates compliance with the Ecology Southwest Region NPDES industrial stormwater permit inspector and Vancouver Field Office staff. Clark County made one industrial stormwater permit referral to Ecology during 2005.

S5.B.8.i. Education to Reduce Stormwater Pollution

Permit Requirement

An education program aimed at residents, businesses, industries, and employees of the permittee whose job functions may impact stormwater quality. An education program may be developed locally or regionally. The program shall include: Education on the proper use and disposal of pesticides, herbicides, and fertilizers; training of construction contractors and developers on developing stormwater site plans and BMPs for construction activities; efforts to explain the definition and impacts, and promote proper management and disposal of used oil and toxic materials.

Summary of Compliance Activities

The Water Resources Program, Solid Waste Program, and ESA Program perform numerous activities to promote awareness of stormwater and water resources, pesticide and fertilizer reduction, proper waste disposal, and source control BMPs through education. The Community Development Department requires certification training for erosion control contractors. No program exists for training regarding site plans because they are required to be signed by licensed professional engineers. Several activities, such as Watershed Stewards and Living on the Land, promote pollution reduction and stormwater quality improvement through watershed stewardship and better management of rural property.

Public Works Solid Waste Program conducts activities aimed at proper management and disposal of hazardous waste and reducing hazardous or toxic materials use. Several of these activities focus on promoting water resources protection and sound environmental practices by businesses. The county also supports and participates in regional programs such as the Environmental Information Cooperative and numerous special events.

Small Quantity Hazardous Waste Generator Assistance Program

Public Works Solid Waste Program collects and disposes of large amounts of household hazardous waste from Clark County residents under S5.B.8.g.. These activities are reported in collection activities. Solid Waste Program staff also provide technical assistance to businesses that generate small quantities of hazardous waste.

Performance Measures	2005 Results
Number of phone inquiries	84
Number of business site visits	3

Stormwater Specific Information and Education

Water Resources has one specialist working mainly on stormwater technical assistance for businesses and homeowners. This activity is also reported as a private storm sewer system inspection activity under S5.B.8.c.

Performance Measure	2005 Results
Number of businesses visited	63

Pesticide Reduction Education/Mother Natures Garden Puppet Shows

Since 2000, Clark County has operated a traveling puppet show that brings fertilizer and pesticide reduction education to over 6,000 elementary school students each year. In addition to the presentations, approximately 268 sets of classroom materials were distributed.

Action	Number of presentations	Total Participants during 2005
Mother Natures Presentations	100 at 36 sites	7,412

Clark County Solid Waste section, in partnership with WSU Extension – Clark County, developed the Naturally Beautiful Backyard Program, providing workshops on natural gardening and rain gardens.

Environmental Information Cooperative

Clark County is one of six partners that support the Environmental Information Cooperative (EIC), which provides coordinated environmental education. The EIC provides programs to school children and teachers throughout Clark County. This includes the River Rangers presentations to primary school classes and a new education program *Macroinvertebrates as Indicators of Water Quality*. A lending library of environmental books, curriculum, and videos is also maintained.

Environmental Information Cooperative Performance Measures	2005 Results
Columbia River Watershed Festival participants	2,400
Number of children reached by Macroinvertebrate program	1,050
Number of children reached by Enviroscape presentations	1,050
Number of children reached by groundwater presentations	140
Number of children reached by River Rangers presentations	1,948
Number of children/adults reached by Aquatic Bugs educational kit	805
Educators reached with Healthy Water-Healthy People workshop	11
Educators reached with Aquatic Bugs workshop	20
Educators reached by Project Wet workshop	10
Number of environmental materials checked out from lending library	1,300
Number of printed materials and electronic items distributed	1,200

Watershed Stewards Program

Clark County funds a full-time position and one half-time position to implement the Watershed Stewards Program at Washington State University Extension. The Watershed Stewards program offers two 10-week training sessions during the year that train volunteers in watershed and water quality protection. These volunteers, in turn, contribute back to the community by educating the public at community events and fairs, guiding students and adult volunteers in tree plantings, conducting stream monitoring projects, and a variety of other activities.

Watershed Stewards Measures

Performance Measure	2005 Results
Number of Watershed Stewards training groups	2
Number of Watershed Stewards trained	41
Number of volunteer hours contributed	2,521
Number of public contacts	4,931

Regional Coalition for Clean Rivers and Streams

Clark County actively participates in the Regional Coalition for Clean Rivers and Streams. In 2005, the coalition continued a campaign entitled *"Is your lawn chemical free? Maybe it should be"* featuring a picture of a child lying in the grass. The campaign included sixteen major newspaper ads, twelve ads in weekly papers, 51 Tri-Met and C-Tran bus "tailboards" and 80 interior bus cards in the Portland-Vancouver area. The Coalition also created a radio advertisement which ran 19 times on 24 stations over a 3 week period. The program also distributed natural lawn care kits throughout the Portland-Vancouver market, including 271 in Clark County. More information is available at the internet site: http://www.cleanriversandstreams.org.

Regional Coalition Actions	2005 Results
Newspaper ads	14 ads / 4,851,400 impressions
Exterior bus boards (~17 weeks)	51 buses
Interior bus cards (4 weeks)	80 /568,025 impressions
Radio advertising (3 weeks)	24 stations /19 runs each
Lawn care kits distributed	1300 total / 271 Clark County
Website hits Jan-June 2005	28,289

Small Acreage Program – Living on the Land
Clark County, in partnership with Washington State University Extension and the Clark Conservation District, funds a full-time position to implement an outreach program for small acreage land owners. This program uses both the *Living on the Land: Stewardship for Small Acreages* curriculum and other stand-alone workshops to educate small acreage landowners about managing their properties to reduce quantity and improve the quality of stormwater runoff from their properties.

The program completed two *Living on the Land* 12-week class series, five septic system workshops, and one rural acreage stormwater best management practices workshop. The program also had a booth at the Clark County Fair. The program also produced four original fact sheets for public distribution.

An impact evaluation survey of *Living on the land* participants was conducted. Preliminary results indicate considerable changes in knowledge level and the implementations of BMPs. In addition, the data also show that graduates of the *Living on the Land* course shared what they learned with their friends, neighbors and coworkers.

Small Acreage Program Measures

Performance Measures	2005 Results
Number of Living on the Land 12-week series	2
Number of participants	54
Number of septic and BMP workshops	7
Number of participants	143
Number of BMP workshops	3
Number of participants	65
Number of farm tours	3
Number of farms identified for signage	10 (new)
Number of requests for assistance	108
Contacts at community events	2 new/4 adapted
Original fact sheets produced	2

River Heroes Storyteller
In 2005, Clark County continued to contract with a professional storyteller to provide *River Heroes,* an environmental storytelling school assembly program for kindergarten through 6th grade classes. Activities for school-based programs are tracked by school year. A *River Heroes* CD was also produced and distributed to teachers and libraries at schools booking a presentation.

River Heroes Performance Measures

Performance Measure	Participants Jan-June 2005	Total Participants 2004-05 school year
Number of students reached	8,351	12,451
Number of teachers reached	365	544
Number of schools/presentations	14/28	23/46

Student Water Quality Monitoring Program

Clark County provides funding support to expand the city of Vancouver's Student Water Quality Monitoring Program into schools in unincorporated Clark County. Students and teachers are mentored during classroom and monitoring site visits as well as provided monitoring equipment. In 2005, students, facilitators and community members participated at the annual Watershed Congress to share the results of their water quality monitoring projects.

In addition, Clark County funds the Student Watershed Research Project (SWRP) at three high schools in Clark County. SWRP staff work with students and teachers, providing support for upper-level water quality monitoring projects in the Portland and Clark County area. In addition to recruiting three teachers to participate, SWRP staff provided classroom instruction at participating schools in macroinvertebrates, habitat assessment, data analysis, water quality, and an introduction to watersheds and monitoring.

Student Water Quality Monitoring Program Measures

Performance Measure	**Sept. 2004 – June 2005 Results**
Student classroom contacts – Vancouver monitoring program	1,107
Annual Watershed Congress participants	172
Students participating in the SWRP Program	365
Schools participating in the SWRP Program	3

Children's Clean Water Billboard Art Contest

Clark County conducted a children's billboard art contest during November 2004 through April 2005. Entry forms and rules were distributed to nine school districts and all private schools in unincorporated Clark County. Four winning entries were selected to appear on commercial billboards for 90 days in 2005.

Children's Clean Water Billboard Art Contest Performance Measures

Performance Measure	2005 results
Number of contest entries	804
Number of participating schools	28
Number of participating school districts	7
Number of billboard viewings (estimated)	153,910

Water Resources Outreach on the Web

Water Resources maintains 50 pages on the Clark County Web site devoted to water quality and the Clean Water Program. Topics include county watersheds, stormwater basin planning, engineering, monitoring, education, enforcement and regulation, and technical assistance as well as information about Clean Water Program administration.

The Web site also includes a list of departments and agencies to contact for water quality and stormwater-related questions or problems.

Community Events

Outreach and education included several annual community events such as the Annual Home and Garden Fair (3 days), the Clark County Fair (10 days), and the Lacamas Watershed Festival (1 day).

Storm Drain Stenciling

Clark County provides materials and stencils to volunteers for an ongoing storm drain stenciling project. Coordination of this effort is now part of the Watershed Stewards Program. In 2005, four groups, including students from the Washington State School for the Blind, stenciled more than 207 storm drains in unincorporated Clark County.

Clean Water Publications

Clark County produced an informational program update and a refrigerator card containing tips for clean water which was included in the annual billing to 59,000 Clean Water Program fee payers.

Erosion Control Certification Training

Beginning January 1, 2001, County code required all development contractors to be trained and certified in erosion and sediment control by an organization recognized by the Community Development Department Director.. This program was discontinued in November 2005, when county code was changed to require erosion and sediment control training and certification recognized by the Washington Department of Ecology.

Status of Condition S9 Scheduled Actions

Special Condition S9 listed specific new activities with implementation schedules before the current reporting period. This section lists the activities and their schedule status.

Requirement	Schedule	Status
S9.A.1. Stormwater equivalence to the Puget Sound Manual	Adopted by 7/31/00	In place 7/28/00
S9.A.2. Storm sewer maintenance ordinance	Adopted by 7/31/00	In place 7/28/00
S9.A.3. Add 1FTE code enforcement officer	In place 8/31/99,	In place 8/31/99
S9.A.3. Add 1FTE code enforcement officer if work load dictates	In place 2/28/00	In place 2/28/00
S9.A.4. Add 1 FTE erosion control inspector for Building	3/31/00	In place 3/31/00
S9.A.4. Add 1 FTE erosion control inspector for Dev. Serv.	3/31/00	In place 3/31/00
S9.A.5. Add 1 FTE stormwater facility inspector for new development	7/31/00	In place 7/00
S9.A.6. Implement Water Quality Ordinance	System in by 7/31/00	Began 7/00
S9.B.1. Increase street sweeping to specified standards	Start 8/31/99	Began 8/99
S9.B.2. Increase swale maintenance to standards	Start 8/31/99	Began 8/99
S9.B.3. Implement inspection and maintenance program for R/D facilities	Start 3/31/00	Began 3/00
S9.B.4. Implement roadside ditch and culvert maintenance standards	Start 3/31/00	Began 3/00
S9.B.5. Add 1FTE for private facilities inspection	Start 7/31/00	In place 6/00
S9.B.6. Develop spill response program	In place 7/31/00	Began 6/00
S9.B.7. Perform storm pipe maintenance to standards	Start 3/31/00	Began 3/00
S9.B.8. Begin yearly catch basin inspection and cleaning	Start 8/31/99	Began 8/99
S9.B.9. Begin 5-year drywell cleaning cycle	Start 3/31/00	Began 3/00
S9.B.10. Establish computer-based maintenance tracking	In place 12/31/00	System in Place 1/00
S9.B.11. Develop a program to map private storm sewers and track maintenance	In place 7/31/00	In place
S9.C.1. Establish a centralized SWMP database	In place 12/31/00	Database implemented in 2004
S9.C.2. Establish GIS storm sewer maintenance program	In place 12/31/00	Storm infrastructure data entry ongoing
S9.C.3. Regulatory program monitoring	In place 7/31/00	Ordinance tracking in place 7/00
S9.C.4. Establish storm sewer screening	In place 7/31/00	In place 7/00
S9.C.5. Watershed Characterization program schedule	Drafted by 7/31/00	Ongoing, projects began in summer 2001
S9.D.1. Permit funding strategy	Ordinance by 9/31/00	Completed 10/99
S9.D.2. Lawn campaign	In place 12/31/99	In place 12/99
S9.D.3. Add 2 FTE for stormwater specific education	In place 7/31/00	Completed 4/00
S9.D.4. Add 1 FTE for Watershed Steward program	In place 7/31/00	In place 11/99
S9.D.5. Add ½ FTE for River Ranger program	In place 3/31/00	In place 8/99
S9.D.6. County policy on pesticide and fertilizers	In place 7/31/00	In place 7/00
S9.E.1. Establish capital improvement program	Begin by 8/31/00	Continued in 2005, See S5.C.8.b.

2. NOTIFICATION OF CHANGE IN PERMIT AREA

During 2005, the Department of Assessment and GIS reported that there were five annexations. These resulted in transfer of 593 acres from unincorporated Clark to the municipalities of Vancouver, Battle Ground, Ridgefield, and Camas. Most of this land was undeveloped.

These annexations have no significant influence on the county program.

3. DIFFERENCES BETWEEN PLANNED AND ACTUAL EXPENDITURES BY COMPONENT.

The permit asks for a description of:

Differences between planned and actual expenditures with a breakdown for the components of the SWMP and the budget since permit issuance. The report shall reflect numeric expenditures for the components of the SWMP.

Summary of Compliance Actions

This report includes tables showing:

- Estimated budget and expenditures by Program Element and
- Estimated yearly expenditures by Permit Component.

It is not possible to track every dollar spent on NPDES permit compliance because no systems were in place to separately track many of the ongoing pre-permit stormwater activities.

Also, the county budget does not have sufficient detail to report by permit component. For activities funded by the stormwater fee, there is a defined county budget, but for activities not funded by the stormwater fee, it is not possible to separate budget for stormwater permit required activities.

Clark County follows a biennial budget process (2005-2006 calendar years). Where permit activities have a defined budget from stormwater fees, an estimate of the 2005 budget is one-half the biennial budget.

Ongoing pre-permit activities had a recognized revenue source, such as development fees, when the permit was issued in 1999. New activities had no established revenue source until October 1999, when the Board of Clark County Commissioners adopted a stormwater fee and established the Clean Water Program Fund. Ongoing, pre-permit stormwater program activities are often difficult to separate from non-stormwater activities because permit compliance was not required when expense tracking systems were set up. New activities billed to the Clean Water Program Fund have expense reporting categories tagged to individual permit components. However, expenses for enhancements of ongoing pre-permit activities, such as increased erosion control

inspections on building projects, are not tracked separately from other concurrent non-stormwater site inspections.

Estimated Budget and Expenditures by Program Element

The estimated 2005 budget includes ongoing pre-permit activities and new permit-required activities that are billed to the Clean Water Program Fund (or stormwater fees). The county budget does not provide the level of detail required to separate budget by components or activity.

Except for ongoing regulatory program activities and stormwater retrofits by road projects, expense tracking generally provides detail by individual projects and activities within a permit component. Due to this, expense tracking is much more reliable than budgets for reporting purposes.

Ongoing pre-permit activities continue at about pre-permit levels. Costs for operation and maintenance of stormwater facilities and roads can vary by season and from year to year depending on weather. For example, extremely wet weather or large storm events can greatly increase costs for emergency actions and repairs, while dry weather decreases costs. Several late 1990s projects included in the pre-permit budget were completed in 2001 and dropped from subsequent budgets.

The Monitoring and Evaluation Program Element and Administration are entirely included in the Clean Water Program Fund budget. Program administration includes program costs such as manager's time, the annual permit fee, annual permit report to Ecology, and stormwater fee collection. The budgets for these program elements are one half the Program Element budget for 2005-2006.

The stormwater capital improvement program is included in the Clean Water Fund budget. In addition, the Public Works Road Fund had estimated expenditures of about $930,000 to provide stormwater controls for older roads being completely replaced by new roads. Since the Transportation Capital Improvement Program does not have a specific budget for stormwater retrofits, no budget amount is provided for that activity.

The Regulatory, Operations and Maintenance, and Public Involvement and Education Program Elements include budget from the Clean Water Program Fund and other previously existing revenue sources such as development fees, the Road Fund, and the Solid Waste Fund. For these program elements, ongoing pre-permit activity budgets are estimated as the sum of NPDES-required activities from year-1 baseline in the Stormwater Management Program (April 1999) and one half of the 2005-2006 Clean Water Program Fund budget.

Expenditures for O and M, Monitoring and Evaluation, Public Involvement and Education, and Administration are from the county accounting system and project billings. The Regulatory Program and Capital Program include estimates for expenditures on projects and activities not tracked separately for the NPDES permit.

The Clean Water Program Fund had a reserve balance of $9,200,000 at the end of 2005. County regulations require the balance to be placed in reserve for stormwater capital improvement projects.

Estimated SWMP Budget and Expenditures by Program Element

SWMP Program Element	***Est. 2000 Budget***	***Est. 2000 Expend.***	***Est. 2001 Budget***	***Est. 2001 Expend.***
Regulatory Program	$ 1,813,542	$ 1,621,799	$ 1,454,242	$2,016,242
Operation and Maintenance	1,895,997	2,085,268	2,325,858	2,250,005
Monitoring and Evaluation	434,180	204,874	595,883	428,763
Public Involvement and Education	1,050,327	776,589	923,124	1,058,034
Capital Improvements	670,610	2,240412	303,618	792,948
Administration/Coordination	643,695	860,983	382,402	386,375
Totals	**$6,508,351.00**	**$7,789,925.00**	**$5,985,127.00**	**$6,932,367.00**
Accumulated Cash Reserve for Stormwater Projects		$1,906,796		$4,366,313

SWMP Program Element	***Est. 2002 Budget***	***Est. 2002 Expend.***	***Est. 2003 SWMP Budget***	***Est. 2003 County Expend.***
Regulatory Program	1,745,555	2,005,196	1,439,392	2,282,283
Operation and Maintenance	2,453,506	1,653,523	2,254,483	1,804,015
Monitoring and Evaluation	597,608	590,480	676,408	784,973
Public Involvement and Education	881,592	1,345,065	1,056,084	1,240,489
Capital Improvements	559,124	622,939	1,562,127	5,540,192
Administration/Coordination	296,220	335,762	505,589	338,512
Totals	**$6,533,605**	**$0**	**$ 0**	**$0**
Cash Reserve for Stormwater Capital Improvement Projects		$6,106,067		$7,173,284

SWMP Program Element	***Est. 2004 Budget***	***Est. 2004 Expend.***	***Est. 2005 Budget***	***Est. 2005 Expend.***
Regulatory Program	1,439,392	2,478,959	1,449,999	2,556,321
Operation and Maintenance	2,254,483	1,871,681	2,468,562	1,835,595
Monitoring and Evaluation	676,408	1,021,675	876,779	707,694
Public Involvement, Education,	1,008,084	1,504,394	1,072,265	1,484,881
Capital Improvements	1,562,127	4,600,708	2,864,395	1,971,169
Administration/Coordination	505,589	312,221	505,589	256,297
Totals	**$7,446,083**	**$11,789,638**	**$9,237,589**	**$8,811,957**
Cash Reserve for Stormwater Capital Improvement Projects		$8,438,510		$9,203,580

Estimated Annual Expenditures by Permit Program Component

Stormwater program components are defined by the permit as specific requirements to develop and implement the stormwater management program. Components S5.B.2., S5.B.3., and S5.B.5. few or no expenses during 2004 because they were completed to develop the 1998 stormwater management program for the permit application. Other components had few or no expenses because activities are conducted under other

components. For example, testing and screening for non-stormwater discharges from industrial facilities under component S5.B.8.h. is actually included in the monitoring program (S5.B.4.). Component S5.B.8.e., consideration of stormwater treatment in flood control projects usually has little or no expense because there are few significant flood control projects in Clark County. Condition S9 components are included in the broader S5.B. components.

Regulatory program expenditures continued to rise slightly.

Expense estimates for 2005 appear to have coding errors in how they were billed by storm versus road actions. Total expenditures are equivalent to 2004 levels. Generally, new O and M activities have been performed at less expense than anticipated when the original SWMP budget was drawn up.

The monitoring program expenses declined in 2005 due to completion of three projects (Watershed Characterization Grant, the wetland Inventory Atlas Grant, and ESA watershed template) that included significant contracted professional services.

Public Involvement and Education activities continued its program from 2004.

The stormwater capital improvements were less than in 2004 mainly because the road project retrofits for existing development were considerably less than in previous years.

Administrative expenses declined slightly due to decreased cost for stormwater fee collection.

Estimated Yearly Expenditures by Permit Component

Component	*Aug. - Dec. 1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
Regulatory Program							
S5.B.8.a. New Development, Redevelopment and Construction Site Runoff	450,140	1,621,799	2,016,242	2,005,196	2,282,283	2,478,959	2,556,321
Operations and Maintenance	0						
S5.B.8.c. Operation and Maintenance of Municipal Storm Sewers	675,052	1,295,186	1,464,892	1,132,333	981,750	1,063,781	1,389,520
S5.B.8.d. Operation and Maintenance of Roads and Highways*	312,621	790,082	785,113	521,190	425,575	807,900	446,075
Monitoring and Evaluation							
S5.B.4. Monitoring Program	58,306	102,926	174,527	452,868	555,207	629,532	472,955
S5.B.6. Storm Sewer Mapping and Data Maintenance	0	101,948	254,236	137,612	229,766	392,143	234,739
Public Involvement and Education							
S5.B.1. Comprehensive Planning Process	8,787	24,405	52,009	23,117	33,466	27,844	40,945
S5.B.2. Management Needs and Priorities	0	0	0	0	96	3	0
S5.B.7. Watershed-wide Coordination	0	160	3,599	12,016	11,749	8,855	52,260
S5.B.8.f. Reduction of water pollution from pesticides, herbicides and fertilizers	0	162	26,146	73,899	79,571	75,181	122,054
S5.B.8.g. Illicit Discharge, Improper Disposal, and Spill Abatement	166,573	286,658	319,184	350,292	321,506	408,761	352,415
S5.B.8.h. Industrial Stormwater Pollution Reduction	0	0	0	51	0	0	0
S5.B.8.i. Public Education	211,019	489,609	709,105	885,690	794,101	983,750	917,207
Capital Improvements							
S5.B.8.b. Control of Runoff from Existing Residential and Commercial Development (includes retrofitting) **	21,113	2,237,646	785,804	622,505	5,540,192	4,600,708	2,388,977
S5.B.8.e. Consideration of Water Quality in Flood Control Projects	0	2,766	7,144	434	0	0	0
Administration							
Program Administration/Coordination/Overhead (no component)	156,227	836,578	334,366	335,762	338,512	312,221	256,297
S5.B.3. Legal Authority	0	0	0	0	0	0	0
S5.B.5. Fiscal Analysis	0	0	0	0	0	0	0
Total	**$2,059,834**	**7,789,925**	**$6,932,367**	**$6,552,965**	**$11,593,774**	**$11,789,638**	**9,229,765**

*S5.B.8.d.had a calculation error in 2003, item reflects corrected calculation in 2005.

**S5.B.8.b.: This reflects a refinement in expenditure calculation in 2005 (no longer are "completed projects", "future projects", or those with "no new impervious area" part of this cost; this reduces the number of stormwater capital improvements from 76 to 22).

4. REVISIONS TO THE SWMP FISCAL ANALYSIS

Clark County's 1998 SWMP included financial analysis for a five-year program. Ecology wrote a permit to cover the period of August 1999 to December 31, 2000 (subsequently extended until a replacement is issued). The 1999 permit included several proposed (not funded) activities in the five-year SWMP, and listed them in Special Condition S9. A revised SWMP, including any permit-required fiscal analysis will be drafted following issuance of the next permit.

5. SUMMARY AND ANALYSIS OF THE CUMULATIVE MONITORING DATA COLLECTED THROUGHOUT THE TERM OF THE PERMIT

All monitoring activities are described under Status of Permit Component S5.B.4. That section reports summary metrics for water quality, macroinvertebrates, and stream temperature collected during the permit term.

In June 2004, Water Resources published the Stream Health Report, which includes informational maps that summarize analysis of stream and lake health data collected before and after permit issuance. Macroinvertebrate, water chemistry, and fecal bacteria data for many stream segments was reduced to a single stream health category. Where there was no field information, a probable health category was assigned from regression analysis of observed stream health scores, versus the percent drainage basin forest cover and percent drainage basin total impervious area. The Stream Health Report can be viewed on the county Internet site at:
http://www.clark.wa.gov/water-resources/stream.html

6. SUMMARY OF COMPLIANCE ACTIVITIES

Information describing compliance activities, including the nature and number of official enforcement actions, inspections, and types of public education activities are included in the sections describing the status of each permit component.

7. IDENTIFICATION OF KNOWN WATER QUALITY IMPROVEMENTS OR DEGRADATION

In 2004, limited analysis of three years of temperature data showed that several Long-Term Index Sites (Component S5.B.4.) showed increasing numbers of days have maximum temperatures above the criteria of 64 degrees Fahrenheit. Data from 2005 suggests that this trend is not continuing. The reasons for this increase in temperatures are not known; however, it is suspected that some streams are more susceptible to heating during drought years due to geology, hydrology, and land cover. The water years 2002 though 2004 were dryer than normal and 2004 was a particularly dry year, at about 67 percent of normal rainfall at WSU Research Station in Vancouver.

A preliminary test for trends on the ten LISP sites and five Salmon Creek ambient monitoring sites found no significant trends in stormwater dominated streams. The analysis used the Mann Kendall test on seasonally adjusted monthly Oregon Water Quality Index scores for the period of May 2002 through February 2006.

LISP Site temperature data logger results as numbers of days exceeding standard temperatures

		2002	2003	2004	2005
Site Name	**Stream**	**Days > 64° F**	**Days > 64° F**	**Days > 64° F**	**Days> 64° F**
CGR020	Cougar Creek	1	0	3	0
CUR020	Curtin Creek	0	0	0	0
MIL010	Mill Creek	23	36	57	40
BRZ010	Breeze Creek	22	33	58	41
RCN050	Rock Creek North	37	40	67	49
CHL010	Chelatchie Creek	12	24	22	26
JNS060	Jones Creek	0	0	0	0
MAT050	Matney Creek	39	66	59	50
GEE050	Gee Creek	56	65	68	56
WPL050	Whipple Creek	23	47	61	39

8. WATERSHED-WIDE COORDINATION AND ACTIVITIES

Activities to coordinate watershed protection are listed in Status of Permit Component S5.B.7. The only other phase I municipal permittee in Clark County is the Washington State Department of Transportation.